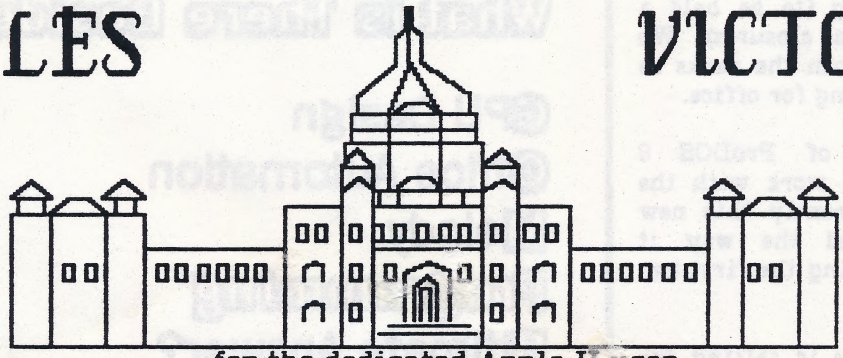
APPLES VICTORIA



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No. 1

January
1990

for the dedicated Apple II user

1989 EXECUTIVE

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Vice-President:	Robin Farquhar
Treasurer:	Dave Barlow
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NOTICE OF NEXT MEETING

DATE: Thursday, **January 11**, 1990
TIME: Doors open at 7 p.m. Meeting starts at 7:30 **sharp**!
PLACE: **Richmond Elementary School**
(Main entrance, turn right, upstairs, north wing)
2780 Richmond Road.

Parking is available on site or on the North side of Townley St. Please note that we must be out by 10 p.m.

(Meetings are usually held the first Thursday of every month from September through to June.)

MEETING FORMAT:

- Group Business
- Questions & Answers/Open Discussion
- Main Theme:
- Special Interest Groups (SIGs)
- Coffee Break

The main subject of this meeting will be the election of our new executive for 1990. Let's have a good turnout for this! Also some volunteers to fill the vacancies.

EDITORIAL

HAPPY NEW YEAR to all! We hope that our club will continue to grow and provide a forum where our new Apple users can obtain assistance with their problems and advice on software and hardware.

Don't forget to fill out the membership data base forms from the December newsletter and give them to George Sherwood.

NOTES FROM THE DECEMBER MEETING

In the short business part of the meeting, Norm asked all members, new and old, to fill in a re-application form by next meeting so that our Club records can be brought up to date. Most of you need to remember to renew your membership in January, a bargain at $24 per year. Check the date on your mailing label for your expiry date.

Norm continues to receive calls for used equipment such as Apple II drives, color monitors, printers, super serial cards, and even a non-working joystick for parts. So if you have any used computer items for sale, let Norm know. And don't forget to advertise in our own newsletter - free to members by contacting Bill Weldon.

Everyone is reminded that the Executive elections are happening at our January meeting (to be held a week late due to school closures). We need new people to join the ranks so please consider running for office.

The latest update of ProDOS 8 (Version 1.8) doesn't work with the no-slot clock. Apparently this new version has changed the way it formats a disk, altering the first two blocks of each disk.

The new 1 meg IIgs is selling for $2595 and includes both a 5.25" drive and a 3.5" drive.

Guest Speaker

Dr. Byron Ehle from the University of Victoria's Computer Science Department gave a most entertaining talk entitled "Programming, is that all there is to Computer Science?", complete with amusing "captioned graphics" displayed on an overhead projector. Dr. Ehle has been with UVic since 1961 and his long list of credencials includes a PhD in Computer Science from the University of Waterloo.

What is There Besides...

CPU Design	**S**
Office Automation	**C**
Melody	**I**
Programming	**E**
Ultimate Answer?	**N**
Theory	**C**
Education	**E**
Retail Products	

The Computer Science Department has only existed at UVic since 1981 as part of the Engineering Faculty. Prior to that in 1969 the Computer Science Group was a speciality in the Mathematics Department within Arts and Sciences. UVic's first computer was an IBM 1620, a 40,000 character machine (CADET = Can't Add Doesn't Even Try!).

Dr. Ehle prepared his presentation very systematically, allowing each letter in the word "computer" to represent a different topic within the field of Computer Science (see accompanying diagram).

"C" stood for CPU Design (and other hardware considerations). The CPU is the central processing unit, or "brain" of the computer, a microprocessor on a chip. As various types of CPUs are developed and marketed, they are given "model" numbers. The CPU on the first Apple II was numbered 6502, and was later refined to the 65C02 for the Apple IIc/e. Both these chips process information 8 bits at a time, slow by today's standards but much better than the 4 bit processors used previously. Did you know that IBM was responsible for setting the standard to bits. Then along came the MC 68020 and MC68030, which are 32 bit processors.

Even at the microprocessor level, the chip must know how to recognize and respond to a variety of commands. How else will it know what to do with the data it receives? Therefore each model of microprocessor has its own built-in command codes called an "instruction set". The more bits of information a CPU can manipulate at a time directly affects the complexity of the possible commands and also the speed with which the commands are handled. Therefore the trend has been for the number of commands in a CPU's instruction set to increase with each new model. However, a group at UVic known as the VLSI (Very Large Scale Integration) has been studying such hardware trends. Recently a new technology is emerging and goes by the acronym of RISC (Reduced Instruction Set Computer). Their motto is "more isn't necessarily better" and they are reducing the number of commands in the newer RISC processors to less than the normal 256. Other trends include developing alternate designs using array or block architecture, or putting multiple processors in a single box to run simultaneously.

Other hardware issues include advances in input/output technology such as disks (magnetic, optical), tapes, optical scanners, and laser printers, to name a few.

systems by designed to optimize data organization and retrieval? What factors need be considered in designing a network for a variety computing needs and company size and physical locations?
"M" stood for Melody, or any art form. Computers can be used to generate music: reproduce existing compositions, create new music, or to analyze any score. For visual art forms, computers can assist in cartography, architecture, animation, colorization of old films (the new automated system was designed by a computer scientist), computer enhanced images from satellites or spacecraft, and interactive video. Games too come under this category.

"P" stood for Programming which most people think of when Computer Science is mentioned. Programming is initially taught in a "higher level" language, one that more closely resembles English and is therefore easier to learn. Apple II users usually choose the BASIC language as it comes built into the computer. Programs written in high level languages must first be converted to machine language (using the CPU instruction set) by another program known as an interpreter or a compiler. Apple BASIC programs are interpreted by the computer every time you RUN the program. Compilers convert the program to a modified machine code which is stored to disk for faster running each time you use it. In either case, however, every line of your program converts to many, many lines of machine code, and often the translation is not done in the most efficient manner. Learning to program in Assembler language, which translates directly to machine code, is much less user-friendly and requires far longer to learn.

Programming in a broader sense can encompass any situation where you are passing commands to the computer. Spreadsheet users commonly insert formulas and equations into their cells to achieve the desired computation. Setting up a spreadsheet to effectively accomplish a given task is considered programming. Many programs now utilize macros (or glossaries, or stylesheets, or libraries) which are programmed by the user to duplicate a series of keypresses when only a single key or key combination is pressed.

Newer trends in programming include list processing, data flow programming language, and object oriented programming common in drawing and desk top publishing software.

"U" stood for Ultimate Answer? - for who? The quest is on to develop computer systems that are of

knowledge based system is in medical diagnosis, where data on a patient is entered and the computer decides what the problem is and what the treatment should be. The effectiveness of such a system hinges on the completeness of the set of rules and data, and on the ability of the person inputing the data to quantify his or her observations accurately. Such systems still lack human intuition and sensory input, and are useful only as tools to assist doctors in their work.

"T" stood for Theory. If better systems are to be devised, research must continue in areas such as numerical analysis and analysis of algorithms. Algorithms are the formulas, equations and method used by the computer to perform certain tasks. For example, there have been many algorithms written to sort data. Anyone who has used a database program with very slow sorting capabilities will appreciate the value of an efficiently written algorithm. Graph theory also encompasses the theory of networks and maps. The study of Turing machines includes a look

ODYSSEY COMPUTERS

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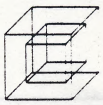
at the "halting problem" and the proven theory that "you can't predetermine if a program will stop or not". Anyone wishing to see the mathematical proof can contact Dr. Ehle!

"E" stood for Education. Computers are widely used to facilitate learning. In the elementary and middle grades, computers and various types of software are used as a student and teacher aids. Drill and practice, simulation, graphics, database and word processing programs all enhance the learning environment. It isn't until the secondary level that computer classes are required - Computer Studies 11 and Computer Science 12, which is recognized by UVic in its course selection criteria. At the college level, technology programs are offered where the emphasis in on the tool (hardware) rather than theory. Such programs usually take 2 years to complete and successful graduates receive a diploma rather than a degree and

year programs are more focused on theory but also include basic technical skills and develop advanced problem analysis and problem solving skills. The Co-op program takes 5 years to complete, and students alternate every 4 months between classroom studies and on-the-job work experience. A student must complete 40 semester courses to earn a BSc degree: 16 in Computer Science, 7 in Mathematics and Statistics, and 17 electives (minor). The Computer Science courses cover 7 study areas including system analysis, programming, and database management. Courses in Physics and Engineering can greatly enhance the hardware technology side of Computer Science. More advanced degrees include MSc or a PhD in Computer Science.

"R" stood for Retail Products. Computer Scientists and Engineers team together to produce marketable technology. These two departments are now linked at UVic to foster creative productivity. Research in robotics is partially funded by Federal Government grants at UVic at present. Many products are now on the market today which were developed, at least in part, by computer scientists: calculators, digital watches, remote control devices, "computerized" auto parts, bank machines, talking appliances, video disks, etc. etc.



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MEMBERSHIP

This month we extend a hearty welcome to

Anna Rubinsky 721-1193

A reminder that dues are now payable by those members whose labels show Jan 90 (or before).

APPLE CANADA NEWS

We have received confirmation of our registration as an Authorized Apple User Group.

MAILBAG

News releases from CLARIS INTERNATIONAL seem to be reaching us with the same speed as those from Apple Canada. We just received a news release dated June 29, 1989 announcing the introduction of AppleWorks 3.0 and another dated Oct.30 announcing major enhancements to AppleWorks GS.

CLARIS' Special Upgrade Offer to User Group Members for AppleWorks expires January 31, 1990, so any interested members be alerted!

Our newsletter swap now includes "**apple BYTES**", published by **The London Apple Corps.** The December '89 issue will be at the next meeting for your perusal.

SOFTWARE

GS/OS Version 5.0.2

The changes from System Software 5.0 to 5.0.2 are explained below. The upgrade includes both System Disk and System Tools. Only the following files have changed and only the problems list4ed have been addressed. System Software 5.0.1 was an internal Apple release that should NOT be used.

NOTE: On System Software 5.0.2, GS/OS has a version number $8301, meaning version 3.1p. The Dialog Manager has a version number 3.2p for ROM01. The Desk Manager has version 3.2 for ROM01 and version 3.2p for ROM03. Be sure to mask out prototype bits when checking version numbers.

AT Responder (System Tools) - Fixed a bug which caused the system to forget chosen network printers unless AppleShare was installed.

BASIC.SYSTEM - Fixed a bug in BLOAD which trashed data. The System now properly returns the NO BUFFERS AVAILABLE error and does not write to the disk.

GS/OS - Fixed the Init Manager to properly sense which screen is up and to always place dialogs on the current screen. Also fixed the Cache Manager bug listed below.

Start.GS.SO and **GS.OS.Dev** - A change was made to the Cache Manager to dereference the cache bucket before it is used in the internal Cache shutdown routines called by ResetCache. This prevents GS/OS fatal error $0002 from popping up during low-memory Memory Manager calls.

Pro.FST - Fixed bugs in GetDirEntry portion of this FST to properly report buffer size errors and to prevent memory from being trashed when using a four-byte name buffer. Also fixed a bug in the Write call that caused data to be trashed on occasion if the Write call was followed by a SetEOF call on sparse files.

Resource.Mgr - Fixed a bug in ResourceShutDown that deallocated all system resources whenever a call

was made. The system now disposes of the resources belonging to the current resource application. A bug in AddResource and WriteResource which corrupted resource maps when two files were open at the same time was also fixed.

Slot CDev - Fixed a bug in setting battery RAM when slot 2 selection was changed. This fix allows ProDOS 8 applications better printing access to network printers.

START (System Tools) - Fixed a bug where the system would forget chosen printer names if the user changed login names after booting from a file server. Note that START is the program GS/OS boots into when using a file server as a boot volume: this file is not the Finder.

"We're sorry to report that, in this case, the name went on before the quality went in."

Tool018 (QuickDraw Aux) - Fixed a bug in CopyPixels that would incorrectly allocate the scratch buffer, causing memory to be randomly trashed.

Tool021 (Dialog Manager) - A handle allocation bug was fixed. DialogStartUp previously allocated a handle as movable when it should have been fixed. This fix prevents random memory trashing (four bytes) on the calls Alert, NoteAlert, StopAlert, and CautionAlert.

Tool023 (Standard File) - Fixed several bugs. Case is now ignored when sortin file lists. Filter procedures and SFxxx2 calls now receive the proper auxiliary type for files, and Standard File now notices an error and skips to the next volume when a user ejects a disk and selects a file while the disk's file list is displayed. Formerly, this situation caused an invalid reply record and sometimes crashed applications.

Tool034 (Text Edit) - Fixed several bugs in TEGetText
and in the use of LETextBox2 type data. Also fixed a bug which hung the machine when an entire TE SuperBlock was included in text to be deleted.

TS2 - Fixed a bug in the QuickDraw II fast slab routines: this fix allows QuickDraw II to properly draw objects with a width greater than 160 bytes. A new Desk Manager patch was added to fix a bug that left the Desk Manager in a "busy" state after calls to AddToRunQ, RemoveFromRunQ, and GetNumNDAs.

TS3 - The Desk Manager patch described above was incorporated, and the Dialog Manager bug listed above was also included here (since the Dialog Manager is included in ROM03).

(Thanks to Rick Diffley, S.A.U.C.E., Dec., 1989)

BEGINNERS CORNER

ProDOS 8 (cont'd)

ProDOS Commands

The general syntax of a ProDOS command is

COMMAND [pathname][,S#][,D#]

The options in square brackets may or may not be required, depending on whether or not the command is directed to a different directory or volume. A comma must be used to separate each option, the order does not matter.

Several commands that were available in DOS 3.3 are not supported by ProDOS.

FP and INT - ProDOS does not support Integer Basic, so there are no commands to switch between Integer and Applesoft.

INIT - Because of the larger memory requirement of ProDOS, the formatting function is contained in Filer, a separate program.

MAXFILES - DOS 3.3 defaults to 3 files that can be open simultaneously. This number can be increased to 16. ProDOS allows up to 8 files to be open at the same time. Since ProDOS buffers are nearly twice the size of DOS buffers, the maximum memory used is about equal.

MON and NOMON - No longer supported.

Enhanced Commands

APPEND - Data can be appended to a variety of file types rather than to sequential text files only.

BLOAD and LOAD commands run much faster under ProDOS, thereby also speeding up BRUN and RUN.

BRUN and BSAVE - All or part of a binary file can be brought into memory and run. Data stored in memory can now be saved to any type of file. The starting address (A-parameter) is still required, but now the end address (E-parameter) may be used instead of the file length (L-parameter).

CATALOG - There are now two commands: CATALOG gives an 80-column output which includes Filename, Type, Size (in blocks), Modified (date, time), Created (date, time), Endfile (# of bytes), Subtype. For

Applesoft Basic files, Subtype gives the starting address. Sequential text files are indicated by R = 0, while Random text files are indicated by R = record length in bytes. (Note: If the screen is in the 40-column mode, each entry will take 2 lines on the screen).

CAT - This new command gives a 40-column output including Filename, Type, Size, Modified (date, time).

CHAIN - Chaining allows a BASIC program to use the variables created by a previously run program. Applesoft can now be chained, instead of Integer as was the case under DOS 3.3.

CLOSE and OPEN - Any type of file can be accessed by the OPEN command. File buffers are allocated when a file is opened and deallocated when closed. This process reserves 512 bytes for a directory file buffer and 1024 bytes for other file buffers. Thus HIMEM can be lowered or raised under the management of ProDOS.

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IN# and PR# - In addition to setting the slot numbers to handle input and output, these commands can now designate machine language routines in RAM as the I/O handlers. The command PR#A$300 routes all output to the code starting at $300. These commands can also reroute slot I/O. The command PR#2,A$C100 sends all data directed to slot 2 to slot 1.

POSITION - This command now allows the Record Number (R-parameter) and Field (F-parameter) optons to skip a designated number of fields. Because of enhancements to the READ and WRITE commands, the POSITION cammand is not required by ProDOS, but is retained for compatability with DOS 3.3.

READ and WRITE - The Byte (B-parameter) and Field (F-parameter) options position forward a designated number of bytes and fields, thus making the POSITION command obsolete.

RUN - Instead of running an entire program, the beginning line number can now be specified.

New Commands

CAT - See above.

CREATE - Although the cammand enables you to create files of any type by using the T-parameter, it is used primarily to create directory files. If no T-parameter is specified, a directory file is produced.

FRE - This new ProDOS command collects garbage much faster than its Applesoft command. It can be issued only in deferred mode.

FLUSH - As data is written to a text file, ProDOS stores a block of 512 bytes in the file buffer before the data is moved to the disk. If a program is halted accidently before this transfer takes place, data may be lost. The FLUSH command flushes the stored code in the file buffer to the disk. If used after every WRITE command, all the data will get to the disk, but program speed is slower.

PREFIX - This command was demonstrated in the previous article (Nov., 1989).

STORE and RESTORE - The STORE command saves the names and values of all currently defined Applesoft variables into a variable file. (To create variables, a program must be run). The RESTORE command replaces variables currently in memory with the contents of the named variable file.

The DASH Command - This command may be used to load and run a BASIC, EXEC, binary, or system file:

- pathname [,S#][,D#]

HELP - This command is available when the file HELP is run on the EXAMPLES disk. As long as the files named HELP and HELPSCREENS are on an active disk, you can type HELP followed by the name of the command, or Type HELP alone to obtain a list of ProDOS commands.

Other Features

ProDOS supports the Applesoft TRACE command which is useful for debugging.

A ProDOS volume can be up to 32 megabytes in size, a file up to 16 MB.

ProDOS automatically sets up a RAM disk on Apple //e's with the extended 80-column text card in the AUXiliary slot.

CREDIT DEPARTMENT

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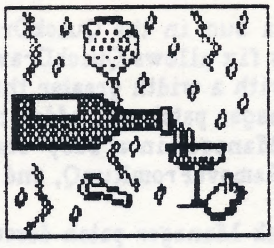

HAPPY NEW YEAR!!!